

Book Reviews



Citation: Lista, G. (2024). François Pépin, *Diderot, philosophe des sciences*, Classiques Garnier. *Diciottesimo Secolo* Vol. 9: 229-231. doi: 10.36253/ds-15092

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Data Availability Statement: All relevant data are within the paper and its Supporting Information files.

Competing Interests: The Author(s) declare(s) no conflict of interest.

François Pépin, *Diderot, philosophe des sciences*, Classiques Garnier, Paris 2023, 255 pp.

Few would disagree that Denis Diderot (1713-1784) stands out as the main, towering figure of the French Enlightenment: chief editor of the *Encyclopédie*, experimental author and playwright, materialist philosopher holding firm atheistic and egalitarian leanings, Diderot engaged with an eclectic variety of topics and genres to produce some of the most sophisticated reflections of the eighteenth century. Yet, in part as the result of censorship and personal circumstances, Diderot's relation to his writings was peculiar to say the least, as he frequently proved reluctant to publish them. Flowing from a veritable «penseur de la complexité» (P. Saint-Amand, *Le labyrinthe de la relation*, J. Vrin, Paris 1984, p. 14), Diderot's imaginative curiosity was never arranged in a cohesive philosophical system, but rather spread across a rich and labyrinthic body of works, some of which remained unpublished or were issued posthumously well into the nineteenth century. The ironical prose of *Jacques le Fataliste et son maître* (1796) or the ingenious, multi-layered satire of *Le Neveu de Rameau* (1891) have therefore made Diderot's oeuvre a better fit for the departments of French literature than for the faculties of philosophy.

Against this one-sided academic straitjacket, François Pépin brings to fruition several years of research to offer a new and revisionist account of Diderot's contributions to the philosophy of science in the Enlightenment period and beyond. Presently associated to the *Institut d'Histoire des Représentations et des Idées dans les Modernités* (IHRIM) at the *École normale supérieure* in Lyon, Pépin has developed an academic interest and published extensively on the interconnection between materialism, determinism and positive sciences, especially in Diderot's works. While the *philosophe's* interest in different scientific disciplines has been the object of previous studies, in its introduction Pépin's volume sets out to address two main shortcomings in present historiography. Firstly, considering Diderot as the forebear of successive developments in certain fields – namely of Charles Darwin's evolutionary theories – feeds into a general tendency to establish teleological narratives in the history of science, which end up merely glossing the process of scientific progress itself. Pépin's commitment to contextualise Diderot's writings in their historical settings aims at reconstructing the ways in which the latter reshaped certain recurring questions that still resonate to this day, rather than at assessing his impact on positive sciences as such. Secondly, Pépin adopts Diderot's investigative approach refusing the *esprit de système* that characterised much of the early Enlightenment, in order to unravel the intricate nuances of the *philosophe's* engagement with chemistry, physics, mathematics, physiology, history of life or medicine. This methodo-

logical choice seeks to push back against streamlined interpretations of Diderot's ideas, but also to invite other historians and philosophers of science to include his works in their own studies.

In fact, Pépin's persuasive narrative discloses and revolves around Diderot's belief in the irreducible plurality of sciences, each with their own metaphysics and epistemologies derived from their practices. In a complete break with the Cartesian tradition of a universal operating model describing the mechanisms of the physical world, Diderot matured a dynamic, active and deeply experimental philosophy, unencumbered by the necessity of theorising unifying principles. The interest Diderot developed for scientific knowledge over his whole life did not transform him into a man of science or a practitioner, but rather into a *philosophe des sciences*, who thinks and speculates «à partir des sciences» (p. 21). It is this image Pépin offers to his audience, through six dense chapters that integrate different methodologies from the history of philosophy to the history of ideas. To accomplish its ends, the present study rests on a balanced collection of sources, ranging from Diderot's articles for the *Encyclopédie* and well-known texts – *Pensées philosophiques* (1746), *Lettres sur les aveugles à l'usage de ceux qui voient* (1749) – to the often overlooked manuscript transcription of the chemistry course designed in 1760 by Guillaume-François Rouelle and posthumous works, notably *Principes philosophiques sur la matière et le mouvement* (1792), *Éléments de physiologie* (1875) and *Le Rêve de d'Alembert* (1830).

The opening chapter (*Déterminisme, nécessité et contingence*, pp. 33-63) unpicks Diderot's determinism to question its connection with the Baron d'Holbach's *Système de la nature* (1770) – lately explored in R. Sciuto, *Determinism and Enlightenment*, Oxford University Studies in the Enlightenment, Liverpool 2023 – and especially with the scientific formulation later elaborated by Pierre-Simon Laplace. Whereas Laplace's causal determinism constitutes the culmination of the mechanist tradition in an attempt at constructing an immutable natural order, Diderot's relativises the laws of nature, making them an ever-changing and contingent phenomenon embedded in historical time. From this perspective, argues Pépin, the Newtonian law of gravitation considered by Voltaire's *Lettres philosophiques* (1734) as a universal determining force now appears to be the «effet global des interactions locales» (p. 44). For Diderot, it is these interactions that should be investigated in the contexts of their interdependency and properties. Likewise, the second chapter (*La conjecture expérimentale*, pp. 65-89) mulls over the key notion of 'experimental conjecture'. Here, Diderot's standpoint escapes his friend

Étienne Bonnot de Condillac's categorisations expressed in the *Traité des systèmes* (1749) by extending the imaginative power of conjectures to practical sciences, as a way to replace reasoning by hypotheses. Pépin masterfully shows how the Diderotian concepts of 'genius' and 'enthusiasm' transcend the boundaries of liberal arts to embrace positive sciences and to connect with the experience of field specialists, presenting the example of Rouelle's operational chemistry.

The «regard chimique de Diderot» (p. 96) – convincingly brought to light by Pépin in previous studies – emerges vibrantly in the third chapter (*Monisme et hétérogénéité des matières*, pp. 91-113), which centres on the multifarious definitions of materialism. In this section, the *Lumières* benchmarks Julien Offray de La Mettrie and d'Holbach determine the framework to illustrate how Diderot refuses the early Spinozian monism of substance. In engaging with the latest historiography on Leibniz and atomism, Pépin concludes that Diderotian epigenetic materialism is rather built upon a plural ontology of heterogeneous matter(s), and multiplies the combinations of its elements in a potentially infinite number of compounds. The relation between the study of living organisms as performed by chemists like Rouelle and Gabriel François Venel and the vitalism of the Montpellier school of medicine constitutes the setting of the fourth chapter (*Chimie et vitalisme*, pp. 115-143). Its purpose is to contextualise Diderot's vitalist materialism with «la pratique et le terrain» (p. 128) of both sciences, without the impulse to forcefully iron out the tensions that inevitably arise. In looking at the ways Diderot perceives the processes of digestion and assimilation, Pépin ingeniously sets the focus of discussion on the peculiar elements of vitalism as an eighteenth-century category, instead of searching for a sharp verdict on the *encyclopédiste*.

A *longue durée* perspective on the history of science informs the last two chapters, where Pépin disentangles Diderot's apparent inconsistencies while bringing the latter into a close dialogue with molecular biology and modern chemistry. How Diderot formulated his conception of evolution, if any, is determined in the fifth chapter (*Diderot et l'évolution*, pp. 145-195) by a close examination of his creative and radical grappling with Lucretius' atomism. Against the backdrop of Jean-Baptiste Lamarck's, Buffon's and Darwin's theories, Pépin suggests that the possibility of a spontaneous fermentation into existence and the naturalist postulate of a primordial prototype are both considered by Diderot as plausible, non-mutually exclusive theories for the origins of different species, which he invites to further explore. Finally, the closing chapter (*Diderot philosophe de la chimie*, pp.

197-224) brings the volume full circle and is dedicated to the connection between Diderot's philosophy and its core science, chemistry. To jostle the Cartesian position reducing chemistry to a part of mechanist physics, Diderot refuses to consider Newtonian gravitation as a theoretical basis to explain the formation of chemical bounds and adopts Venel's model of chemical affinities between elements. As we would come to expect however, Diderot's pluralising philosophy further elaborates on this picture, in this case overcoming the distinction between the inherent properties of substances and the chemical reactions constituting their expressions.

In conclusion, what is *Diderot, philosophe des sciences*'s contribution to its field? First and foremost, retracing Diderot's vertiginous breakaway from dogmatic claims of universal systems and illustrating the philosophical elaboration of his «épistémologie régionale» (p. 121) based on operating sciences are compelling, commendable achievements. There is no doubt that Pépin's arguments are richly detailed and laid out with the insight only an outstanding specialist could provide. In the context of the recently increased interest in Diderotian studies, this monograph is a substantial addition, which sheds a new light on several intertwined topics within eighteenth-century philosophy of science and will generate stimulating debates. To a general scholarly audience, the minor downside to Pépin's approach seems to be that of Diderot's: making it tremendously difficult to produce a satisfying synthesis without inevitably simplifying intricate and subtle thinking.

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